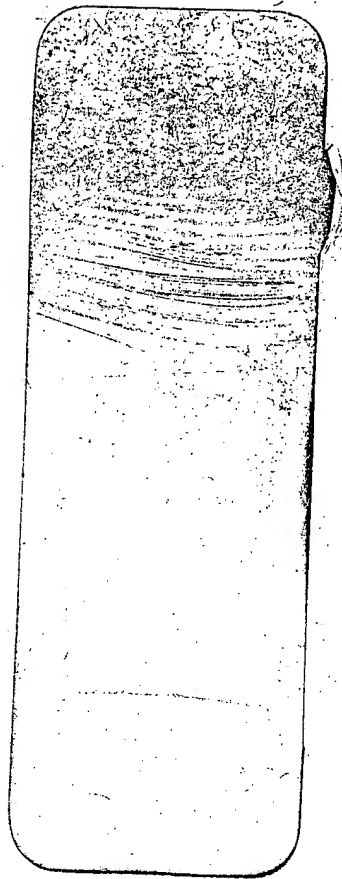


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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/121,175	07/22/1998	RICHARD B. MERRILL	FOV-011	3033

24737 7590 07/08/2003

PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER
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YE, LIN

ART UNIT	PAPER NUMBER
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DATE MAILED: 07/08/2003

29

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

09/121,175

Applicant(s)

MERRILL ET AL.

Examiner

Lin Ye

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 31-59 is/are pending in the application.
- 4a) Of the above claim(s) 10-27, 37-54, 58 and 59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 28, 29, 31-36 and 55-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 6, 7, 15, 16, 206 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Species of Figure 5 which read on claims 1-9, 28-29, 31-36 and 55-57 in Paper No. 18 filed on May 13, 2002 is acknowledged.
2. Applicants elect claims 25-27 and 52-54 in Paper No. 18 filed on May 13, 2002. The claims 25 and 52 includes a limitation “ **a column bias line**” which read on Figure 10, but does not read on Figure 5. Because applicant did not correctly meet the restriction requirement, the election has been treated as an election nonresponsive. The claims 25-27 and 52-54 withdrawn from further consideration pursuant to 37 CFR 1.142(a) as being drawn to a nonelected Species, there being no allowable generic or linking claim.
3. Applicants also elect claims 21-24 and 48-51 in Paper No. 18 filed on May 13, 2002. The claims 21 and 48 includes a limitation “ **a plurality of row select lines**” which read on Figures 6 and 9, but does not read on Figure 5. Because applicant did not correctly meet the restriction requirement, the election has been treated as an election nonresponsive. The claims 21-24 and 48-51 withdrawn from further consideration pursuant to 37 CFR 1.142(a) as being drawn to a nonelected Species, there being no allowable generic or linking claim.
4. Claims 10-20, 37-47, 58 and 59 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 18 filed on May 13, 2002.

### *Response to Arguments*

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5. Applicant's arguments with respect to claims 1-9, 28-29, 31-36 and 55-57 filed on May 6, 2003 have been considered but are moot in view of the new ground(s) of rejection.

### ***Specification***

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "**means**" and "**said**," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5, 28-29, 31-32 and 55-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Booth Jr. U.S. Patent 6,078,037.

Referring to claim 1, the Booth reference discloses in Figures 2-4, an active pixel sensor (pixel 60, See Col 2, lines 65-67 and Col. 3, lines 1-5) disposed on a semiconductor substrate, comprising a photosensor (light sensitive element 10) having a first terminal and a second terminal, said first terminal coupled to a first reference potential; a reset transistor (transistor 12) having a first terminal coupled to said second terminal of said photosensor, a second terminal coupled to a reset potential, and a third terminal coupled to a reset line (See Figure 2); a plurality of transfer transistors (transistors 34, 44, 54...), each transfer transistor having a first terminal directly connected to said second terminal of said photosensor, a second terminal, and a third terminal connected to a transfer line; and a plurality of storage nodes (nodes 32, 42, 52...) , each storage node coupled to a separate one of said second terminals of said plurality of transfer transistors (transistors 34, 44, 54...) as shown in Figure 2 (See Col. 2, lines 26-56).

Referring to claim 2, an active pixel sensor (pixel 60) further including means coupled to plurality of storage nodes (nodes 32, 42, 52...) for outputting a value from any of said plurality of storage nodes (See Col. 2, lines 26-56).

Referring to claim 3, an active pixel sensor (pixel 60) includes a plurality of transfer lines, wherein each of plurality of transfer lines is connected to a separate one of said third terminal of said plurality of transfer transistors (transistors 34, 44, 54...) as shown in Figure 2.

Referring to claim 4, an active pixel sensor (pixel 60) wherein each separate one of said plurality of storage nodes (nodes 32, 42, 52...) is coupled to said means for outputting a value from any of said plurality of storage nodes by a separate one of a plurality of readout

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transistors (transistors 38, 48, 58...) having a first terminal connected to said separate one of said plurality of storage nodes, a second terminal coupled to a second potential, and a third terminal connected to said means for outputting a value from any of said plurality of storage nodes as shown in Figure 2.

Referring to claim 5, an active pixel sensor (pixel 60) further including a plurality of storage elements (36, 46, 56...), each separate one of said storage elements having a first terminal coupled to separate one of said storage nodes (nodes 32, 42, 52...), and a second terminal coupled to second reference potential as shown in Figure 2.

Referring to claim 6, an image-sensing array (62) is provided with photosensitive areas (64) made up of rows and columns (NxM) of active pixel sensors (pixel 60). Inherently, each active pixel sensor includes a plurality row select transistors and coupled to a row select line for receiving address signal to act as a switch to allow output signals related to the value and node to appear at the readout circuit. The active pixel sensor (pixel 60) includes a plurality of column output lines (B1,B2, BN...).

Referring to claim 28, the Booth reference discloses in Figures 2-4, an active pixel sensor (pixel 60, See Col 2, lines 65-67 and Col. 3, lines 1-5) disposed on a semiconductor substrate, comprising a photosensor (light sensitive element 10) having a first terminal and a plurality of second terminals, said first terminal coupled to a first reference potential; a reset transistor (transistor 12) having a first terminal coupled to said at least one of said plurality of second terminals of said photosensor, a second terminal coupled to a reset potential, and a third terminal coupled to a reset line (See Figure 2); a plurality of transfer transistors (transistors 34, 44, 54...), each transfer transistor having a first terminal directly connected to

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a separate one of said plurality of second terminals of said photosensor, a second terminal, and a third terminal connected to a transfer line; and a plurality of storage nodes (nodes 32, 42, 52...), each said plurality of storage nodes coupled to a separate one of said second terminals of said plurality of transfer transistors (transistors 34, 44, 54...) as shown in Figure 2 (See Col. 2, lines 26-56).

Referring to claim 29 is considered substantively equivalent to claim 2 discussed above.

Referring to claim 31 is considered substantively equivalent to claim 4 discussed above.

Referring to claim 32 is considered substantively equivalent to claim 5 discussed above.

Referring to claim 55, the Booth reference discloses in Figure 4, a method of operating an active pixel sensor (60) having a photosensor (10), a reset transistor (12), a plurality of storage nodes (nodes 32, 42, 52...) coupled to said photosensor and means coupled to said plurality of storage nodes for outputting a value from any of said plurality of storage nodes comprising: turning on the reset transistor to place a reset potential on said photosensor; transferring charge from said photosensor to a first of the plurality of storage nodes for a first duration; transferring charge from said photosensor to a second of the plurality of storage nodes for a second duration(See Col. 3, lines 45-48); outputting charge from any of the plurality of storage nodes which is not having charge transferred from said photosensor, wherein said outputting of charge occurs during the transferring of charge as shown in Figure 4 (the readout at function block 122 ways after the SAMPLE is deasserted and the ISA reset, thereby ending the capture period) (See Col. 3, 50-66).

Referring to claim 56 the Booth reference discloses wherein said first duration commences coincident with said second duration (See Col. 4, lines 9-20).



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Referring to claim 57 the Booth reference discloses wherein said second duration commences after said first duration has ended (See Col. 3, lines 45-49).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6-9 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Booth Jr. U.S. Patent 6,078,037 in view of Merrill et al. U.S. Patent 5,962,844.

Referring to claim 6, the Booth reference disclose all subject matter as discussed in respected claims 1-2, and also an image-sensing array (62) is provided with photosensitive areas (64) made up of rows and columns (NxM) of active pixel sensors (pixel 60); the active pixel sensor (pixel 60) includes a plurality of column output lines (B1, B2, BN...); except the reference does not explicitly show a plurality of row select transistors connected to a row select line.

The Merrill reference discloses in Figures 8A, 4 and 3, an active pixel sensor (400) includes each separate one of said plurality of storage nodes is coupled to said means for outputting a value from any of said plurality of storage nodes by a separate one of a plurality of readout transistors (414 & 416, Col. 8, line 66) having a first terminal connected to said separate one of said plurality of storage nodes, a second terminal coupled to a second potential, and a third terminal connected to said means for outputting a value from any of

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said plurality of storage nodes ; a plurality of column output lines (202 & 204); a row select line (128); and a plurality of row select transistors (n3 and n5), each of said row select transistors having a first terminal coupled to one of said plurality of storage nodes, a second terminal coupled to one of said plurality of column output lines, and a third terminal coupled to said row select line (See Col. 8, lines 66-67). The Merrill reference is an evidence that one of ordinary skill in the art at the time to see more advantages for an active pixel image cell has one of row select transistors to connect with separate one of said plurality of storage nodes and a row select line, because the row select transistors act as a switch to allow output signals related to the value and node to appear at the readout circuit and simultaneously generate as pixel output the signals required for determining the difference between the pixel output and increase the speed with which images can be acquired. For that reason, it would have been obvious to see the active pixel sensor (60) includes a plurality of row select transistors, each of said row select transistors having a first terminal coupled to one of said plurality of storage nodes, a second terminal coupled to one of said plurality of column output lines, and a third terminal coupled to said row select line disclosed by Booth.

Referring to claim 7, the Booth reference discloses the active pixel sensor (pixel 60) further including a plurality of transfer lines, wherein each separate one of said plurality of storage nodes (nodes 32, 42, 52...) is coupled to said second terminal of said photosensor by a separate one of a plurality of transfer transistors having first terminal connected to said second terminal of said photosensor, a second terminal connected to said separate one of said plurality of storage nodes, and a third terminal connected to a separate one of said plurality of transfer lines as shown in Figure 2.

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Referring to claim 8, the Merrill reference discloses an active pixel sensor (400) has wherein each separate one of said plurality of storage nodes (node 1 & 2 with storage elements 410 & 412) is coupled to said first terminal of a separate one of said plurality of row select transistors (418) by a separate one of a plurality of readout transistors having a first terminal connected to said separate one of said plurality of storage nodes, a second terminal coupled to a second potential, and a third terminal coupled to said first terminal of said separate one of said plurality of row select transistors.

Referring to claim 9, the Booth reference discloses the active pixel sensor (pixel 60) further including a plurality of storage elements (36, 46, 56....), each separate one of said storage elements having a first terminal coupled to a separate one of said storage elements having a first terminal coupled to a separate one of said storage nodes, and a second terminal coupled to a second reference potential as shown in Figure 2.

Referring to claim 33 is considered substantively equivalent to claim 6 discussed above.

Referring to claim 34 is considered substantively equivalent to claim 7 discussed above.

Referring to claim 35 is considered substantively equivalent to claim 8 discussed above.

Referring to claim 36 is considered substantively equivalent to claim 9 discussed above.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929.

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**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks


Washington, DC. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,  
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is (703) 306-0377.

  
WENDY R. GARBER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

Lin Ye  
May 30, 2003

<b>Notice of References Cited</b>	Application/Control No. 09/121,175	Applicant(s)/Patent Under Reexamination MERRILL ET AL.	
	Examiner Lin Ye	Art Unit 2612	Page 1 of 1

#### U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,078,037	06-2000	Booth, Jr., Lawrence A.	250/208.1
	B	US-5,962,844	10-1999	Merrill et al.	250/214A
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

#### FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

#### NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

#4

Form PTO 1449 (Rev. 2-32)		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. FOV-011		Serial No. 09/121,175	
Information Disclosure Statement by Applicant (Use several sheets if necessary)				Applicant: Richard B. Merrill, et al.			
Filed: 7/22/98				Group:			
U.S. Patent Documents							
Init.	Document No.	Date	Name	Class	Subclass	Filing Date	
ly	3,934,161	1/20/76	Caywood	307	311	4/29/74	
ly	3,988,619	10/26/76	Malaviya, et al.	307	311	12/27/74	
ly	4,363,963	12/14/82	Ando	250	211	2/26/80	
ly	4,626,915	12/2/86	Takatsu	358	213	7/10/84	
ly	4,654,714	3/31/87	Hurst, Jr. et al.	358	213	10/30/85	
ly	4,734,776	3/29/88	Wang et, al.	358	213.31	8/15/86	
ly	4,742,238	5/3/88	Sato	250	578	10/1/86	
ly	4,809,075	2/28/89	Akimoto, et al.	358	213.18	10/19/87	
ly	4,875,091	10/17/89	Yamada, et al.	358	42	3/16/88	
Foreign Documents							
						Translation	
Init.	Document No.	Date	Country	Class	Subclass	Yes	No
						RECEIVED	
						JUN 17 2003	
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Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)							
ly	Abbas El Garmal, et al. "Modeling and Estimation of FPN Components in CMOS Image Sensors" Information Systems Laboratory, Stanford University pp. 1-10 1987						
ly	Alex Dickinson, et al. "TP 13.5: A 256x256 CMOS Active Pixel Image Sensor with Motion Detection" IEEE International Solid-State Circuits Conference pp.226-227 1995						
ly	Andrew J. Blanksby, et al. "Noise Performance of a color CMOS Photogate Image Sensor" IEEE pp. 205-208 1997						
ly	Author Unknown, "Tittle Unknown" IEDM pp. 202-204 1997						
Examiner				Date considered			
				7/22/02			
Examiner: Initial if citation considered, whether or not citation is in conference with MPEP 609; Draw line through citation if not conformance and not considered. Include a copy of this form with the next communication to applicant.							

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09/121,175

Information Disclosure Statement by Applicant

Applicant: Richard B. Merrill, et al.

(Use several sheets if necessary)

Filed: 7/22/98

Group:

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Init.	Document No.	Date	Name	Class	Subclass	Filing Date
y	4,901,129	2/13/90	Hynecek	357	30	3/23/89
y	4,942,473	07/17/90	Zeevi, et al.	358	213.26	6/30/88
y	5,014,107	5/7/91	Vora	357	44	8/29/89
y	5,021,853	6/4/91	Mistry	357	23.13	4/27/90
y	5,055,418	10/8/91	Vora	437	31	11/13/90
y	5,117,292	5/26/92	Matsunaga	358	213.19	4/27/90
y	5,161,024	11/3/92	Oishi	358	213.24	5/10/91
y	5,276,521	1/4/94	Mori	358	213.31	12/30/92
y	5,317,174	5/31/94	Hynecek	257	222	2/19/93

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## Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

y	Bernwald Rossler "Electrically Erasable and Reprogrammable Read-Only Memory Using the n-Channel SIMOS One-Transistor Cell" IEEE Transactions on Electron Devices Vol ED-24, No. 5 pp 606-610 May 1977
y	Carver A. Mead, et al. "Scanners for Visualizing Activity of Analog VLSI Circuitry" California Institute of Technology Computation and Neural Systems Program pp 1-29 July 5, 1991
y	Eric R. Fossum "Active Pixel Sensors: Are CCD's Dinosaurs?" SPIE Vol. 1900 pp.2-14
y	Hon-Sum Philip Wong, et al. "CMOS Active Pixel Image Sensors Fabricated Using a 1.8-V, 0.25-um CMOS Technology pp 889-894 IEEE Transactions on Electron Devices Vol 45 No. 4 April 1998

Examiner

Date considered

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Applicant: Richard B. Merrill, et al.

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Init.	Document No.	Date	Name	Class	Subclass	Filing Date
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y	5,341,008	8/23/94	Hynecek	257	231	9/21/93
y	5,396,289	3/7/95	Nakamura	348	294	7/6/93
y	5,414,464	3/9/95	Sasaki	348	222	4/5/94
y	5,414,683	5/9/95	Tani	36.9	47	10/28/92
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y	5,428,390	6/27/95	Cooper, et al.	348	240	1/21/94
y	5,471,245	11/28/95	Cooper, et al.	348	302	5/19/94
y	5,541,402	7/30/96	Ackland, et al.	250	208.1	10/17/94

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## Translation

Init.	Document No.	Date	Country	Class	Subclass	Yes	No

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y	Hon-Sum Philip Wong "CMOS Image Sensors - Recent Advances and Device Scaling Considerations" IEEE pp. 201-204 1997
y	Orly Yadid-Pecht, et al. "A Random Access Photodiode Array for Intelligent Image Capture" IEEE Transactions on Electron Devices, Vol. 38 No 8 pp 1772-1780 August 1991
y	R. Daniel McGrath, et al. "FA 11.2: Current-Mediated, Current-Reset 768x512 Active Pixel Sensor Array" IEEE /Slide Supplement pp 182-183 & 138-139
y	S. Decker et, al. "A 256x256 CMOS Imaging Array with Wide Dynamic Range Pixels and Column-Parallel Digital Output" IEEE International Solid-State Circuits Conference pp.176-177 1998

Examiner

Date considered

Examiner: Initial if citation considered, whether or not citation is in conference with MPEP 609; Draw line through citation if not conformance and not considered. Include a copy of this form with the next communication to applicant.



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(Rev. 2-32)U.S. Department of Commerce  
Patent and Trademark OfficeAtty. Docket No.  
FOV-011Serial No.  
09/121,175

Information Disclosure Statement by Applicant

Applicant: Richard B. Merrill, et al.

(Use several sheets if necessary)

Filed: 7/22/98 **Received** Group:

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OCT 26 1998

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y	5,572,074	11/5/96	Standley	307	117	6/6/95
y	5,576,763	11/19/96	Ackland, et al.	348	308	11/22/94
y	5,589,423	12/31/96	White, et al.	437	228	10/3/94
y	5,625,210	4/29/97	Lee et, al.	257	292	4/13/95
y	5,631,704	5/20/97	Dickinson, et al.	348	308	10/14/94
y	5,705,441	1/6/98	Wang, et al.	438	384	3/19/96
y	5,712,682	1/27/98	Hannah	348	255	12/2/96

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## Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

y	R. Panicacci, et al. "1/4-Inch CMOS Active Pixel Sensor with Smart On-Chip Functions and Full Digital Interface" Hot Chips IX pp. 41-54 August 25-26 1997
y	S.M. SZE "Physics of Semiconductor Devices" Wiley-Interscience pp 526-533 1969
y	Stephen John Decker "A Wide Dynamic Range CMOS Imager With Parallel On-Chip Analog-to-Digital Conversion" pp 1-205 1997
y	Sunetra K. Mendis et, al "A 128 x 128 CMOS Active Pixel Image Sensor for Highly Integrated Imaging Systems" IEEE pp.583-586 1993

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Date considered

7/22/03

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[illegible]

Form PTO 1449		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. FOV-011		Serial No. 09/121,175		
Information Disclosure Statement by Applicant				Applicant: Merrill et al.				
(Use several sheets if necessary)				Filed: 7/22/98		Group:		
U.S. Patent Documents								
Init.		Document No.	Date	Name	Class	Subclass	Filing Date	
<i>uy</i>		4,499,529	2/12/85	Figueroa	362	283	8/24/83	
<i>uy</i>		4,573,077	2/25/86	Imai	358	212	9/4/84	
<i>uy</i>		4,626,915	12/2/86	Takatsu	358	213	7/10/84	
<i>uy</i>		4,742,238	5/3/88	Sato	250	578	10/1/86	
<i>uy</i>		4,843,474	6/27/89	Suzuki	358	213.19	12/30/87	
<i>uy</i>		5,434,620	7/18/95	Higuchi et al.	348	308	9/28/93	
Foreign Documents							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No
Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)								
<i>uy</i>		S. Decker et, al. "A 256x256 CMOS Imaging Array with Wide Dynamic Range Pixels and Column-Parallel Digital Output" IEEE International Solid-State Circuits Conference pp.176-177 1998						
Examiner					Date considered			
<i>[Signature]</i>					7/22/02			
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Form PTO 1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. FOV-011	Serial No. 09/121,175
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Information Disclosure Statement by Applicant	Applicant: Richard B. Merrill, et al.
(Use several sheets if necessary)	Filed: 7/22/98      Group:

U.S. Patent Documents

Init.		Document No.	Date	Name	Class	Subclass	Filing Date

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Foreign Documents	Translation
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Init.		Document No.	Date	Country	Class	Subclass	Yes	No

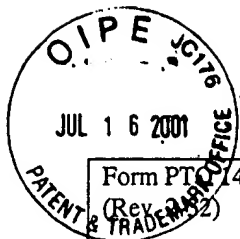
Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

W	R.M. Guidash, et al. "A 0.6 um CMOS Pinned Photodiode Color Imager Technology" IEDM pp.927-929 1997

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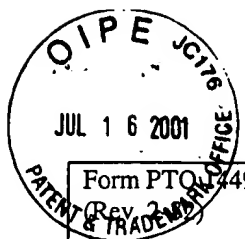
JUL 18 2001

Form PT 449 (Rev. 2-92) U.S. Department of Commerce Patent and Trademark Office				Atty. Docket No. FOV-011		Serial No. 09/121,175		
Information Disclosure Statement by Applicant				Applicant: Merrill, et al.				
(Use several sheets if necessary)				Filed: July 22, 1998		Group: 2612		
U.S. Patent Documents								
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1	1	3,866,067	2/11/75	Amelio	307	311	5/21/73	
2	2	3,971,065	7/20/76	Bayer	358	41	3/05/75	
3	3	4,011,016	3/08/77	Layne, et al.	356	195	9/23/75	
4	4	4,236,760	12/02/80	Haar, et al.	303	6C	3/01/79	
5	5	4,238,760	12/09/80	Carr	357	30	10/06/78	
6	6	4,309,604	1/05/82	Yoshikawa, et al.	250	226	7/24/79	
7	7	4,473,836	9/25/84	Chamberlain	357	30	5/03/82	
8	8	4,499,529	2/12/85	Figueroa	362	283	8/24/83	
9	9	4,499,590	2/12/85	Bluzer	377	60	1/14/83	
10	10	4,573,077	2/25/86	Imai	358	212	9/04/84	
11	11	4,613,895	9/23/86	Burkey, et al.	358	41	11/13/78	
12	12	4,651,001	3/17/87	Harada, et al.	250	330	12/13/84	
13	13	4,677,289	6/30/87	Nozaki, et al.	250	226	11/04/85	
14	14	4,704,633	11/03/87	Matsumoto	358	213.27	2/20/86	
15	15	4,786,818	11/22/88	Mead, et al.	250	578	11/09/87	
16	16	4,839,735	6/13/89	Kyomasu, et al.	358	213.31	12/21/87	
17	17	4,845,553	7/04/89	Konomura, et al.	358	98	5/19/88	
18	18	5,038,214	8/06/91	Miida	358	213.11	3/10/89	
19	19	5,227,887	7/13/93	Dohi, et al.	358	213.27	12/20/91	
20	20	5,241,575	8/31/93	Miyatake, et al.	377	60	9/09/92	
21	21	5,289,023	2/22/94	Mead	257	291	8/07/92	
22	22	5,397,734	3/14/95	Iguchi, et al.	437	70	10/02/92	
23	23	5,414,465	5/09/95	Kodama, et al.	348	236	1/03/94	
24	24	5,434,620	7/18/95	Higuchi, et al.	348	308	9/28/93	
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Translation								
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Form PTO-449

(Rev. 2-98)

U.S. Department of Commerce  
Patent and Trademark OfficeTechnology Center 2600 Docket No.  
FOV-011Serial No.  
09/121,175

## Information Disclosure Statement by Applicant

Applicant: Merrill, et al.

(Use several sheets if necessary)

Filed: July 22, 1998

Group: 2612

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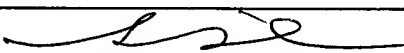
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y	25	5,461,425	10/24/95	Fowler, et al	<del>348</del>	<del>294</del>	2/15/94
y	26	5,502,299	3/26/96	Standley	<del>250</del>	<del>208.2</del>	12/12/94
y	27	5,668,596	9/16/97	Vogel	<del>348</del>	<del>222</del>	2/29/96
y	28	5,742,058	4/21/98	Pantigny, et al.	<del>250</del>	<del>370.08</del>	5/30/96
y	29	5,801,657	9/01/98	Fowler, et al.	<del>341</del>	<del>155</del>	2/05/97
y	30	5,883,421	3/16/99	Chouikha, et al	<del>257</del>	<del>461</del>	3/13/97
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y	33	6,211,510 B1	4/03/01	Merrill, et al.	<del>250</del>	<del>208.1</del>	1/26/00
y	34	6,246,436 B1	6/12/01	Lin, et al.	<del>348</del>	<del>308</del>	11/03/97

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Init.		Document No.	Date	Country	Class	Subclass	Yes	No
y	35	0 466 929 A1	22.01.92	EP	<del>H04N 5</del>	<del>238</del>		
y	36	0 605 898 A1	13.07.94	EP	<del>H01L 27</del>	<del>146</del>		
y	37	0 777 379 A1	04.06.97	EP	<del>H04N 3</del>	<del>15</del>		
y	38	0 854 516 A2	22.07.98	EP	<del>H01L 27</del>	<del>146</del>		
y	39	62143571	26.06.87	JP	<del>H04N 5</del>	<del>335</del>		
y	40	01103378	20.04.89	JP	<del>H04N 5</del>	<del>335</del>		
y	41	06133320	13.05.94	JP	<del>H04N 9</del>	<del>09</del>		
y	42	08009391	12.01.96	JP	<del>H04N 9</del>	<del>04</del>		
y	43	08095670	12.04.96	JP	<del>G06F 1</del>	<del>16</del>		
y	44	43 04 506 A1	18.08.94	DE	<del>H04N 5</del>	<del>225</del>		
y	45	198 36 356 A1	12.05.99	DE	<del>H01L 27</del>	<del>1</del>		
y	46	54-108628	25.08.79	JP	<del>G03B 7</del>	<del>20</del>		No
y	47	58-83824	19.05.83	JP	<del>G03B 7</del>	<del>20</del>		No
y	48	59-152424	31.08.84	JP	<del>G03B 7</del>	<del>20</del>		No

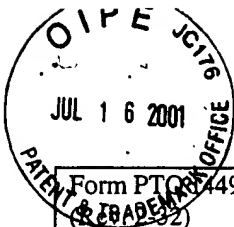
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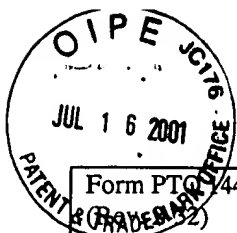
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Form PTOL 449		U.S. Department of Commerce Patent and Trademark Office		Technology Center 2600		App. Docket No. POV-011		Serial No. 09/121,175	
Information Disclosure Statement by Applicant						Applicant: Merrill, et al.			
(Use several sheets if necessary)						Filed: July 22, 1998		Group: 2612	
U.S. Patent Documents									
Init.		Document No.	Date	Name	Class	Subclass	Filing Date		
Foreign Documents									
Translation									
Init.		Document No.	Date	Country	Class	Subclass	Yes	No	
y	49	59-42527	09.03.84	JP	G03B 17	14			No
y	50	60-23841	06.02.85	JP	G03B 17	14			No
y	51	60-53912	28.03.85	JP	G02B 7	11			No
y	52	99/66560	23.12.99	Int.	H01L 27	144			
y	53	99/66712	23.12.99	Int.	H04N 3	15			
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[Signature]					7/22/02				
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Patent and Trademark Office

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Atty. Docket No.  
FOV-011Serial No.  
09/121,175

## Information Disclosure Statement by Applicant

Applicant: Merrill, et al.

(Use several sheets if necessary)

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## Foreign Documents

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y	80	Boyd Fowler, et al., " <u>Techniques For Pixel Level Analog to Digital Conversion</u> ", Information Systems Laboratory, Stanford University.					
y	81	Boyd Fowler, et al., " <u>A CMOS Area Image Sensor With Pixel Level A/D Conversion</u> ", Information Systems Laboratory, Electrical Engineering Department, Stanford University, November 20, 1995.					

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